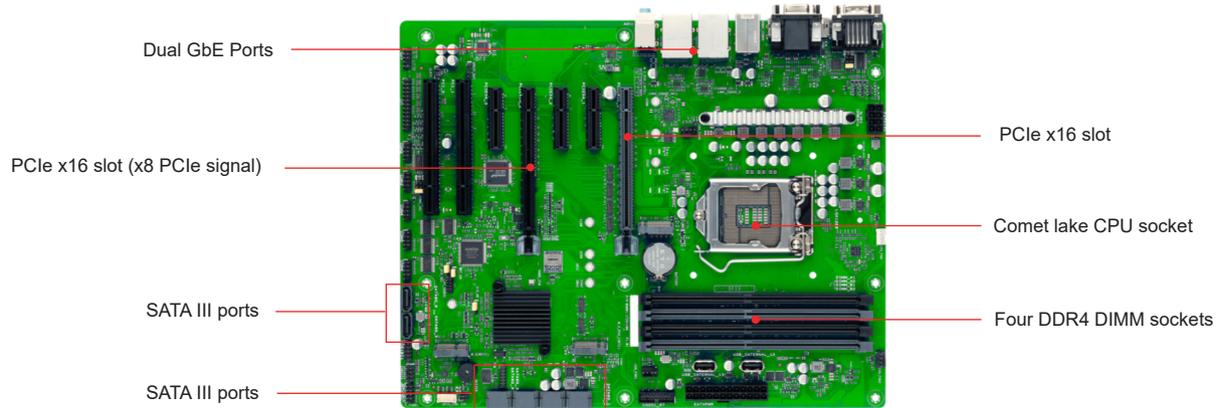


# RUBY-D812-Q470E

10th Gen Intel® Core™ Processors based ATX with DDR4 Long-DIMM up to 128GB, VGA, Dual DP, HDMI, Dual GbE LAN, and Six COM Ports



RUBY-D812 is based on Intel® Q470E chipset and Desktop processors including 10th Gen Intel® Core™ i3/i5/i7 SKU. This board supports DDR4, PCIe 4.0, and SATAIII. Those features help you to build high performance and stable system.

## FEATURES

- Intel® 10<sup>th</sup> Gen Core™ Processors
- 4x Long-DIMM sockets support DDR4 Non-ECC DRAM up to 128GB
- Dual Ethernet, 6x COM Ports, 6x USB 3.2 Ports, 6x SATA III Ports and Audio
- 2x PCIe x16 (1 x8 signal), 3x PCIe x4, 2x PCI slots
- 1x M.2 Key B for 4G/5G module, 1x M.2 Key E for Wireless, and 1x M.2 Key M for SSD

## REAR I/O



## ORDERING GUIDE

|                 |   |
|-----------------|---|
| <b>AB1-3L60</b> | RUBY-D812-Q470E (R).RUBY-D812-Q470E.ATX IMB.LGA1200 Q470E. w/ DDR4 /VGA/Dual DP/HDMI Dual GbE/COM/Audio/USB |
|-----------------|---|

## PACKING LIST

|                           |
|---------------------------|
| One RUBY-D812 motherboard |
| One I/O Shield            |
| One SATA Cable            |

## GENERAL

|                     |   |
|---------------------|---|
| Processor           | 10 <sup>th</sup> Gen Intel® Core™ Processors in LGA1200 package   |
| Chipset             | Intel® Q470E  |
| BIOS                | AMI uEFI BIOS (SPI ROM)   |
| Memory              | Support up to 128GB DDR4 2400/2666/2933 Non-ECC on four Long-DIMM socket  |
| Storage Devices     | 6x SATAIII ports (port1 /port2 shared with M.2 Key M)   |
| Watchdog Timer      | Programmable by embedded controller   |
| Hardware Monitoring | System monitor (Voltage, Fan Speed and Temperature)   |
| Expansion Interface | - 2x PCIe x16 (1x PCIe x8 signal)<br>- 3x PCIe x4 slots, 2x PCI slots<br>- 1x M.2 Key M for SSD, 1x M.2 Key E for Wireless, 1x M.2 Key B for 4G/5G module |

## I/O INTERFACE

|             |   |
|-------------|---|
| Super I/O   | NCT6116D  |
| Audio       | Audio Jack on rear I/O with Line-out/Mic-in with Realtek ALC897 Audio controller  |
| Ethernet    | - Intel® I219LM(1G) and Intel® I225V(2.5G) Ethernet controller<br>- 2x RJ45 connectors on rear I/O  |
| Serial Port | - 2x RS-232/422/485 ports (one on REAR I/O, one on board header)<br>- 4x RS-232 ports on pin header                                       |
| USB         | - 4x USB 3.2 Gen2 on rear I/O (3x Type A, 1x Type C), 2x USB 3.2 Gen1 on pin header<br>- 2x USB 2.0 on pin header, 2x vertical connectors |
| GPIO        | 8-bit configurable controlled by embedded controller  |

## DISPLAY

|                    |   |
|--------------------|---|
| Graphic Controller | - Intel® graphic UHD 630 supports DirectX 12, OpenGL 4.5  |
| Display Interface  | - 2x DP ports on rear I/O, resolution up to 4K (4096x2160@60Hz)<br>- 1x VGA port on rear I/O resolution up to 1920x1200<br>- 1x HDMI connector on rear I/O, resolution up to 4096x2160@30Hz |

## Mechanical & Environment

|              |   |
|--------------|---|
| Dimension    | 304.8mm(L) x 243.8mm(W) x 1.6mm(H)  |
| Power Supply | ATX   |
| Environment  | - Operation temperature:0~60°C<br>- Storage temperature: -20~80°C<br>- Relative humidity:5~95%,non-condensing |
| MTBF         | Over 100,000 hours at 40°C  |

